

NELSON AIRCRAFT CORPORATION

MODELS: Nelson Auxiliary Power Glider BB-1, 2 PCLM

T.C. NUMBER: GTC 19 (Approved 4/21/47)

Type	Glider with auxiliary power (See NOTE 3)		
Airspeed limits	Glide or dive 88 mph True Ind.		
C.G. range	(+79.2) to (+85) (See NOTE 5)		
Datum	69.4 inches forward of leading edge of wing at root		
Leveling means	Tail boom		
Maximum weight	940 lbs.		
No. seats	2 (+57.5) (See NOTE 5)		
Maximum baggage	None		
Fuel capacity	3 gallons (fuel-oil mixture)		
Control surface	Elevator	26.5 degrees up	12.5 degrees down
movements	Aileron	12.5 degrees up	6.0 degrees down
	Rudder	20.0 degrees right	20.0 degrees left
Serial Nos. eligible	502 and up (See NOTE A)		
Required equipment	Items 1, 101, 102, 201, 202, 301, 401, 402, 403		

SPECIFICATIONS PERTINENT TO ALL MODELS:

Certification basis	Type Certificate No. 19 (CAR 5)
Production basis	None (See NOTE A)

Propeller and Propeller Accessories:

1. Propeller fixed pitch wood (See NOTE 2)		
(a) U.S. Propellers 42RB20	4 lbs.	(+130)
(b) U.S. Propellers 42RBX24	4 lbs.	(+130)
(c) U.S. Propellers 42RB21	4 lbs.	(+130)

Engine and Engine Accessories - Fuel System

101. Engine		
(a) Nelson Model H-44 (See NOTE 3)		
(b) Nelson Model H-49 (See NOTE 3)		
102. Batteries (2) Eveready #1461		
6-volt drycell	18 lbs.	(+13)

Landing Gear

201. Main wheel items		
(a) 2 wheels with brakes - Nelson B-100		(+94.5)
(b) 2 tires Firestone 4.00-4 commercial grade		(+94.5)
(c) 2 tubes 4.00-4 commercial grade		(+94.5)
202. Nose wheel items		
Wheel and tire - General E63	5 lbs.	(+18)

Electrical Equipment

301. One voltmeter

Interior Equipment

- 401. Airspeed indicator
- 402. Tachometer
- 403. CAA Approved Operating Limitations Manual (equivalent to and acceptable as an "Airplane Flight Manual")

NOTE A. Prior to original certification each glider must satisfactorily pass:

- (a) An inspection for workmanship, material and conformity during construction.
- (b) A final inspection of the completed glider.
- (c) Check of flight characteristics.

NOTE 1. Current weight and balance report including list of equipment included in certificated weight empty, and loading instructions when necessary, must be in each glider at the time of original certification and at all times thereafter.

NOTE 2. Propeller is not required to be certificated, but is to be approved on basis of conformity of either U.S. Propellers, Inc. drawings 42RB-03, Change A; 42RB21; or 42RBX24. Propeller diameter 42" maximum, 41" minimum; static limits 3900 RPM maximum, 3750 RPM minimum.

NOTE 3. Engine is not required to be type certificated but is to be approved on the basis of conformity with following requirements:

Manufacturer: Nelson Specialty Welding Equipment Company, San Leandro, CA

Model	H-44	H-49	
Assembly Drawing No.	E-80	E-80 with E-225 cylinder	--
Type	4HOA-2 cylinder		
Rating			
Maximum except T.O. HP, RPM at pressure			
Altitude	25-3900 S.L.	28-4000 S.L.	
Take-off (one minute) HP, RPM, full throttle	25-3900	28-4000	
Minimum Idling Speeds	Spark advanced-2000 RPM	--	
	Spark retarded-1500 RPM	--	
Fuel	12 parts 80 octane gasoline to 1 part SAE 30 oil by volume		
Bore and Stroke, In.	2.25 x 2.75	2.375 x 2.75	
Displacement Cu. In.	44		49
Compression Ratio	9.0:1		--
Weight (dry) Lb.	40		--
Crankshaft Gearing	Direct drive		--
Propeller Shaft	Special tapered		--
Supercharger Ratio	None		--
Carburetion	Carter WA1 No. 413-S, Part No. E-192		--
Ignition, Single	Used two 6-volt dry cell batteries, two breakers and two coils (See NOTE 4)		--
Ignition timing; Degrees btc	40 degrees		
Spark Plugs	Champion J-10 or AC-44		--
Lubrication	Fuel-Oil mixture (crankcase induction)		--
Temperature Limits	Cylinder heads 500 degrees F		--
	Cylinder Bases 280 degrees F		--

NOTE 4. The following placards must be mounted in full view of the pilot:

- (a) "This aircraft must be operated in compliance with the CAA Approved Operations Limitations Manual."
- (b) "No acrobatic maneuvers authorized, including spins."
- (c) "Airplane, auto or winch tow is prohibited."
- (d) "Instrument flight prohibited."
- (e) "Avoid continuous engine operation below 3000 RPM." (Adjacent to tachometer.)
- (f) "Minimum battery voltage 4.0 volts." (Adjacent to voltmeter.)

NOTE 5. Total weight in both seats must be greater than a certain minimum value when glider is flown solo. This minimum value shall be established as prescribed by the Approved Operations Limitations Manual, and shall be shown on a placard reading as follows:

"Total weight in seats must be at least -- lb. for balance reasons. When ballast is required, secure in all locations."

This placard must be mounted in full view of the pilot.